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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/625,646 | 07/23/2003 | Tiecheng A. Qiao | 85505KNM | 9727 |

7590 04/05/2006

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|---|---|
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| **ART UNIT** | **PAPER NUMBER** |
| 1639 | |

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/625,646 | QIAO ET AL. | |
| | Examiner | Art Unit | |
| | Christopher M. Gross | 1639 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on *13 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☐ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) *17-22,23-27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/10/03;1/21/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

Responsive to communication entered 2/13/2006. Claims 1-27 are pending. Claims 17-27 are withdrawn. Claims 1-16 are examined herein.

### *Priority*

1. This application has a filing date of 7/23/2003. Applicant makes no claim for the benefit of any prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c).

### *Election/Restrictions*

2. Applicant's election with traverse of invention I, claims 1-22 and the adhesive layer comprising gelatin species of claims 9-16 in the reply filed on 2/13/2006 is acknowledged.

The traversal is on the ground(s) that a prior art search concerning a gelatin array containing an A-L-B compound product and its method of preparation are most efficient if done together. This is not found persuasive for many reasons. First, given that the elected invention and species do not necessarily contain an A-L-B compound, arguments set forth by Applicant are largely moot.

Second, there are multiple methods of preparing said product, beyond the protein-collagen conjugate technique suggested in the prior Office Action, which is demonstrated in many of the references cited and discussed below.

A comprehensive examination concerning the method of preparation that is invention II entails considering prior art procedures which may or may not necessarily give rise to the product that is invention I of the instant application. In contrast, a

thorough examination, of the product that is invention I includes studying intermediates in the prior art which may or may not ultimately be converted to the product that is invention I. Therefore, the search for the methods and products do not significantly overlap.

Applicant is reminded: where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04.

The requirement is still deemed proper and is therefore made FINAL.

3. Claims 17-22 and 23-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species and invention, respectively, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 2/13/2006.

***Information Disclosure Statement***

4. The information disclosure statement entered on 11/10/2003 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information

referred to therein regarding citation A6 (Document number 95/04594) has not been considered.

5. The information disclosure statement filed 11/10/2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. The copy of citation A9 (Arenkov et al) provided by applicant has missing pages. However, in the interest of compact prosecution, Arkenov et al has been considered in *full* and the bibliographic information has been transferred to PTO form 892, included with this Office Action.

6. The information data sheets entered 11/10/2003 and 1/21/2005 are objected to because dates are missing from the foreign patents documents [See MPEP 609.01, (B)(1)(e)(iv)]. Examiner has **not** initialed citations A2-A5, A7-A8 and B4 for this reason. Again however, in the interest of compact prosecution, citation B3 (abstract from Soviet Union Patent 308239) has been considered and the bibliographic information has been transferred to PTO form 892 included with this Office Action.

## *Claim Rejections - 35 USC § 112*

The following is a quotation of the **second** paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1 and dependent claims 2-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites vague and indefinite language in "interposed." It is not clear as to whether the protein binding layer is on top or rather sandwiched between the substrate and adhesive layer. As currently written, the metes and bounds of the claims are unascertainable.

It is recommended that the word 'is' be inserted at the end claim 1 part (b).

2. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Unlike claim 15, the unit of measure concerning gelatin mass in claim 16 does not indicate the coverage area and therefore, as currently written, the metes and bounds of the claim is unascertainable.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,2,6,9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Dorogushin et al (Soviet Union Patent SU308662 – IDS entry 1/21/2005 transferred to PTO-892).

The claimed invention is drawn to a protein microarray element comprising: a) a support; b) a gelatin layer containing functional groups capable of binding biological probes; and interposed between the support and the gelatin layer c) an adhesive interlayer layer capable of maintaining contact with the support and with the gelatin layer. Claims 2,6,9-12 represent variations thereof.

Dorogusin, et al, in the abstract teach a cellulose acetate film comprising two layers: a gelatin sublayer to improve adhesion which is applied with acetone, ethanol and phthalic acid and a copying layer, also comprising gelatin.

As is well known in the art and as evidenced by Schor et al (1996 J. Cell Sci. 109:2581-2590), fibronectin is a protein which binds denatured collagen (a.k.a. gelatin), thus inherently, the entirety of the gelatin based film of Dorogushin et al would perform as a protein microarray element, reading on 'a gelatin layer containing functional groups capable of binding biological probes' of claim 1 part (b) as well as the preamble of claim 1.

The improved adhesive gelatin sublayer of Dorogushin et al reads on 'an adhesive interlayer layer capable of maintaining contact with the support and with the gelatin layer' of claim 1 part (c), and the gelatin adhesive interlayer of claim 6 (elected species) and claim 9. The cellulose acetate film of Dorogushin reads on the support of claim 1 part (a) and the organic support of claim 2.

The ethanol and acetone of Dorogushin et al read on the 'organic solvent or a mixture of solvents' of claim 10 and the acetone of claim 11 (elected species).

According to page 7 of the specification, an organic acid can act as dispersion aid, thus the phthalic acid of Dorogushin et al reads on the dispersing aid of claim 12.

4. Claims 1,2,6,9-10,12 are rejected under 35 U.S.C. 102(b) as being anticipated by Himmelmann et al (US Patent 3480431).

Himmelmann et al teach, throughout the document and especially examples 1 and 2 a cellulose acetate film comprising two layers: a gelatin adhesive layer applied with 3 % formalin and di-isobutyl naphthalic-1-sulfonic acid and a grey layer, also comprising gelatin.

As is well known in the art and as evidenced by Schor et al (1996 J. Cell Sci. 109:2581-2590), fibronectin is a protein which binds denatured collagen (a.k.a. gelatin), thus inherently, the entirety of the gelatin based film of Himmelmann et al would perform as a protein microarray element, reading on 'a gelatin layer containing functional groups capable of binding biological probes' of claim 1 part (b) as well as the preamble of claim 1.

The adhesive gelatin layer of Himmelmann et al reads on 'an adhesive interlayer layer capable of maintaining contact with the support and with the gelatin layer' of claim 1 part (c), and the gelatin adhesive interlayer of claim 6 (elected species) and claim 9. The cellulose acetate film of Himmelmann et al reads on the support of claim 1 part (a) and the organic support of claim 2.

The formalin solution of Himmelmann et al reads on the 'organic solvent or a mixture of solvents' of claim 10.

According to page 7 of the specification of the instant application, an organic acid can act as dispersion aid, thus the di-isobutyl naphthalic-1-sulfonic acid of Himmelmann et al reads on the dispersing aid of claim 12.

5. Claims 1,2,6,9 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Bauer et al (US Patent 5639589 – IDS entry 1/21/2005).

Bauer et al teach, throughout the document and especially example 1 a polyethylene naphthalate film support comprising multiple layers including a gelatin adhesive layer and additional colored layers, also comprising gelatin.

As is well known in the art and as evidenced by Schor et al (1996 J. Cell Sci. 109:2581-2590), fibronectin is a protein which binds denatured collagen (a.k.a. gelatin), thus inherently, the entirety of the gelatin based film of Bauer et al would perform as a protein microarray element, reading on 'a gelatin layer containing functional groups capable of binding biological probes' of claim 1 part (b) as well as the preamble of claim 1.

The adhesive gelatin layer of Bauer et al reads on 'an adhesive interlayer layer capable of maintaining contact with the support and with the gelatin layer' of claim 1 part (c), and the gelatin adhesive interlayer of claim 6 (elected species) and claim 9. The

polyethylene naphthalate film of Bauer et al reads on the support of claim 1 part (a) and the organic support of claim 2.

Bauer et al teach that the gelatin layers are 2.44 g per square meter, reading on the microarray with gelatin coverage is 0.2 to 100 grams per square meter of claim 15.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1,2,6,9-12,15 and 7,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of **Dorogushin et al** (Soviet Union Patent SU308662 – IDS entry 1/21/2005 transferred to PTO-892), **Himmelmann et al** (US Patent 3480431) or **Bauer**

**et al** (US Patent 5639589 – IDS entry 1/21/2005), each taken separately, each in view of **Roberts et al** (US Patent 5380642).

The claimed invention is drawn to a protein microarray element comprising: a) a support; b) a gelatin layer containing functional groups capable of binding biological probes; and interposed between the support and the gelatin layer c) an adhesive interlayer layer capable of maintaining contact with the support and with the gelatin layer. Claims 2,6,9-12 represent variations thereof. Claims 7, as elected, limits the adhesive layer to comprising a synthetic polymeric peptizer. Claim 8, as elected, limits the adhesive later to comprise acrylamide polymers.

**Dorogusin, et al**, in the abstract teach a cellulose acetate film comprising two layers: a gelatin sublayer to improve adhesion which is applied with acetone, ethanol and phthalic acid and a copying layer, also comprising gelatin.

The improved adhesive gelatin sublayer of Dorogushin et al is taken to be 'an adhesive interlayer layer capable of maintaining contact with the support and with the gelatin layer' of claim 1 part (c), and the gelatin adhesive interlayer of claim 6 (elected species) and claim 9. The cellulose acetate film of Dorogushin is taken to be the support of claim 1 part (a) and the organic support of claim 2. The ethanol and acetone of Dorogushin et al is taken to be the 'organic solvent or a mixture of solvents' of claim 10 and the acetone of claim 11 (elected species). According to page 7 of the specification, an organic acid can act as dispersion aid, thus the phthalic acid of Dorogushin et al is taken to be the dispersing aid of claim 12.

**Himmelmann et al** teach, throughout the document and especially examples 1 and 2 a cellulose acetate film comprising two layers: a gelatin adhesive layer applied with 3 % formalin and di-isobutyl napthalic-sulfonate and a grey layer, also comprising gelatin.

The adhesive gelatin layer of Himmelmann et al is taken to be 'an adhesive interlayer layer capable of maintaining contact with the support and with the gelatin layer' of claim 1 part (c), and the gelatin adhesive interlayer of claim 6 (elected species) and claim 9. The cellulose acetate film of Himmelmann et al is taken to be the support of claim 1 part (a) and the organic support of claim 2. The formalin solution of Himmelmann et al is taken to be the 'organic solvent or a mixture of solvents' of claim 10. According to page 7 of the specification of the instant application, an organic acid can act as dispersion aid, thus the di-isobutyl-naphthalic-1-sulfonic acid of Himmelmann et al is taken to be the dispersing aid of claim 12.

**Bauer et al** teach, throughout the document and especially example 1 a polyethylene naphthalate film support comprising multiple layers including a gelatin adhesive layer and additional colored layers, also comprising gelatin. The adhesive gelatin layer of Bauer et al is taken to be 'an adhesive interlayer layer capable of maintaining contact with the support and with the gelatin layer' of claim 1 part (c), and the gelatin adhesive interlayer of claim 6 (elected species) and claim 9. The polyethylene naphthalate film of Bauer et al is taken to be the support of claim 1 part (a) and the organic support of claim 2. Bauer et al teach that the gelatin layers are 2.44 g

per square meter, which is taken to be the microarray with gelatin coverag is 0.2 to 100 grams per square meter of claim 15.

As is well known in the art and as evidenced by Schor et al (1996 J. Cell Sci. 109:2581-2590), fibronectin is a protein which binds denatured collagen (a.k.a. gelatin), thus inherently, the entirety of the gelatin based film of Dorogushin, Himmelmann or Bauer would perform as a protein microarray element, which is taken to the 'a gelatin layer containing functional groups capable of binding biological probes' of claim 1 part (b) as well as the preamble of claim 1.

None of Dorogushin, Himmelmann or Bauer teach an adhesive layer comprising polyacrylamide or a synthetic polymeric peptizer, however.

**Roberts et al**, throughout the document, and especially table I teach the use of polyacrylamide based peptizers for gelatins, which is taken to be the 'synthetic polymeric peptizers' of claim 7 (elected species) and 'adhesive interlayer comprising acrylamide polymers' of claim 8 (elected species).

It would have been *prima facie* obvious for one of ordinary skill in the art, at the time the claimed invention was made to use the polyacrylamide based peptizers in preparing the gelatin based films capable performing as protein microarrays of Dorogushin, Himmelmann or Bauer.

One of ordinary skill in the art would have been motivated to make and use the polyacrylamide based peptizers of Roberts et al with the gelatin based films capable performing as protein microarrays of Dorogushin, Himmelmann or Bauer because the arrays would have had better resistance to bacterial decomposition and provided easer

handling in non aqueous environments, as noted by Roberts et al in column 2, lines 35 and 45.

One of ordinary skill in the art could have used the polyacrylamide based peptizers of Roberts et al with the gelatin based films capable performing as protein microarrays of Dorogushin, Himmelmann or Bauer with a reasonable expectation of success based on the many examples provided by Roberts et al.

8. Claims 1,2,6,9-12,15 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of **Dorogushin et al** (Soviet Union Patent SU308662 – IDS entry 1/21/2005 transferred to PTO-892), **Himmelmann et al** (US Patent 3480431) or **Bauer et al** (US Patent 5639589 – IDS entry 1/21/2005), each taken separately, each in view of **Arenkov et al** (2000 Analytical Biochemistry 278:123-131– IDS entry 11/10/2003 transferred to PTO-892).

Claim 3 limits the support to glass or fused silica. Claim 4 limits the substrate thickness to between 0.1 and 5 mm. Claim 5 limits the support to thickness to between 0.5 and 2.0 mm. Claim 12 includes the limitation that the adhesive layer comprise a crosslinker.

**Dorogushin et al**, **Himmelmann et al**, and **Bauer et al** are relied on as above.

None of Dorogushin, Himmelmann or Bauer teach glass slide substrates, with a substrate thickness between 0.1 and 2.0 mm, or the introduction of a crosslinker however.

**Arenkov et al**, teach throughout the publication, and especially page 124 under subheading Fabrication of gel micromatrices, the use of a Corning Micro Slide, which is taken to be the glass support of claim 3 and further taken to be the inorganic support of claim 2. As evidenced by the Fisher Scientific Catalog (a printout from the on-line version is included with this Office Action), said slides are between 0.9 and 1.1 mm, which is taken to be in range the set forth in both claims 4 and 5. Arenkov et al also teach the use of bisacrylamide as a crosslinker.

It would have been *prima facie* obvious for one of ordinary skill in the art, at the time the claimed invention was made touse the Corning Micro Slide and employing bisacrylamide as a crosslinker of Arenkov et al with the gelatin based films capable performing as protein microarrays of Dorogushin, Himmelmann or Bauer.

One of ordinary skill in the art would have been motivated to use the Corning Micro Slide and employing bisacrylamide as a crosslinker of Arenkov et al with the gelatin based films capable performing as protein microarrays of Dorogushin, Himmelmann or Bauer because the transparency of the slides and resulting polymer comprising bisacryalmide crosslinker would have afforded the ability to perform fluorescence, as noted by Arenkov in Figure 1, making the the microarrays more versatile.

One of ordinary skill in the art could have used the Corning Micro Slide employing bisacrylamide as a crosslinker of Arenkov et al with the gelatin based films capable performing as protein microarrays of Dorogushin, Himmelmann or Bauer with a

reasonable expectation of success since derivization of glass slides is very well known in the art.

9. Claims 1,2,6,9-12,15 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of **Dorogushin et al** (Soviet Union Patent SU308662 – IDS entry 1/21/2005 transferred to PTO-892), **Himmelmann et al** (US Patent 3480431) or **Bauer et al** (US Patent 5639589 – IDS entry 1/21/2005), each taken separately, each in view of **Christopher** (US Patent 2309340).

Claim 13 limits the gelatin to being alkaline pretreated.

**Dorogushin et al**, **Himmelmann et al**, and **Bauer et al** are relied on as above.

None of Dorogushin, Himmelmann or Bauer teach alkaline pretreated gelatin, however.

**Christopher**, throughout the document, and especially page 1, left column, lines 15-20 teaches alkaline pretreatment of gelatin.

It would have been *prima facie* obvious for one of ordinary skill in the art, at the time the claimed invention was made to use the alkaline pretreated gelatin of Christopher in making the gelatin based films capable performing as protein microarrays of Dorogushin, Himmelmann or Bauer.

One of ordinary skill in the art would have been motivated to use the alkaline pretreated gelatin of Christopher in making the gelatin based films capable performing as protein microarrays of Dorogushin, Himmelmann or Bauer because the alkaline

pretreatment would have enhanced the adhesive (glue-like) properties of the gelatin, as noted by Christopher on page 1, left column, line 6.

One of ordinary skill in the art could have used the alkaline pretreated gelatin of Christopjer with the gelatin based films capable performing as protein microarrays of Dorogushin, Himmelmann or Bauer with a reasonable expectation of success since the advantage of alkaline pretreatment of gelatin has been apprectiated in this and other arts for some time.

10. Claims 1,2,6,9-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of **Dorogushin et al** (Soviet Union Patent SU308662 – IDS entry 1/21/2005 transferred to PTO-892), **Himmelmann et al** (US Patent 3480431) or **Bauer et al** (US Patent 5639589 – IDS entry 1/21/2005), each taken separately, in view of **Bonderman** (US Patent 5348852).

Claim 14 limits the gelatin to pig or fish gelatin.

**Dorogushin et al**, **Himmelmann et al**, and **Bauer et al** are relied on as above.

None of Dorogushin, Himmelmann or Bauer teach pig or fish gelatin, however.

**Bonderman**, throughout the document, and especially column 3, lines 4-6 teach pig and fish gelatin.

It would have been *prima facie* obvious for one of ordinary skill in the art, at the time the claimed invention was made to use the fish gelatin of Bonderman in making the gelatin based films capable performing as protein microarrays of Dorogushin, Himmelmann or Bauer.

One of ordinary skill in the art would have been motivated to use the fish gelatin of Bonderman with the gelatin based films capable performing as protein microarrays of Dorogushin, Himmelmann or Bauer because fish gelatin had been shown to better stabilize enzymes, as noted by Bonderman in column 2, line 64, giving the arrays a better shelf life.

One of ordinary skill in the art could have used the fish gelatin of Bonderman with the gelatin based films capable performing as protein microarrays of Dorogushin, Himmelmann or Bauer with a reasonable expectation of success since Bonderman provides examples from two different enzyme classes.

11. Claims 1,2,6,9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of **Dorogushin et al** (Soviet Union Patent SU308662 – IDS entry 1/21/2005 transferred to PTO-892), **Himmelmann et al** (US Patent 3480431), each taken separately, in view of **Fiebag** (US Patent 6143479).

Claim 12 includes the limitation of a silicate salt combined with the gelatin as a dispersing aid.

**Dorogushin et al**, **Himmelmann et al**, are relied on as above.

Neither of Dorogushin or Himmelmann teach sodium silicate as a dispersing aid, however.

**Fiebag**, throughout the document, and especially column 3, lines 61-66 teach waterglass (a.k.a. sodium silicate) as a conventional wetting or dispersive agent, which is taken to be the silicate salt of claim 12.

It would have been *prima facie* obvious for one of ordinary skill in the art, at the time the claimed invention was made to use a silicate salt as a dispersion aid in preparing the gelatin based films capable performing as protein microarrays of Dorogushin or Himmelmann.

Employment of a silicate salt, as opposed to the organic acid based dispersion aids described above by Dorogushin et al or Himmelmann et al represents a routine experimental optimization and the normal desire of scientists or artisans to improve upon what is already generally known provides the motivation (See MPEP 2144.05).

One of ordinary skill could employ silicate salts, in preparing the gelatin based films capable performing as protein microarrays of Dorogushin or Himmelmann, with a reasonable expectation of success since their properties as dispersive aids has been well appreciated in this and other arts for some time.

***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of copending Application No. 10682271 in view of any of Dorogushin et al (Soviet Union Patent SU308662 – IDS entry 1/21/2005 transferred to PTO-892), Himmelmann et al (US Patent 3480431) or Bauer et al (US Patent 5639589 – IDS entry 1/21/2005).

Claims 1-16 of the instant application are drawn to an biological array comprising an *adhesive* layer.

Claims 1-25 of copending Application No. 10682271 are drawn to an array having a *filler,* in lieu of an adhesive.

Any of Dorogushin et al, Himmelmann et al or Bauer et al show an adhesive layer is desirable and thus the array of the instant application is an obvious variant over the array of copending Application No. 10682271.

This is a provisional obviousness-type double patenting rejection.

***Conclusion***

13. No claims allowed.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ermantraut et al. 1997 International Conference on Microreaction Technology 332-339)

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Gross whose telephone number is (571)272-4446. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (571)272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher M Gross
Examiner
Art Unit 1639

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MARK SHIBUYA, PH.D.
PATENT EXAMINER